Lying about where the treasure lies: Pragmatic cues to deception in production and comprehension

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Lying about where the treasure lies
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Introduction
Research on deception shows that: (a) speakers produce verbal and nonverbal cues that signal deceit when lying, and (b) listeners attend to certain cues when attempting to recognise deceit. Are the cues that listeners rely on in perceiving deception the same as those speakers produce when lying?

Previous work on deception

1. Behavioural cues to deception
   - Pitch variation due to various emotions associated with deception (the emotional hypothesis [1])
   - Improved speech disturbances due to greater mental load (the cognitive hypothesis [2])
   - Rigid or unnatural behaviour due to increased effort to mask deception (the attempted control hypothesis) [3]
   - Cue behaviour may be more pronounced when speaker’s motivation increases—the Motivation Impairment Effect [4]

2. Limitations
   - Inconsistencies across studies often lead to conflicting results e.g., [2] and [3]
   - Production studies tend to employ cued lying paradigms
   - Perception studies tend to rely on post-hoc judgements
   - Studies frequently overlook the interactive component of deception

Current study
Investigate the production and perception of verbal and nonverbal cues to deception in an interactive, two-person dialogue game.

Motivations for design
 Speakers given free choice to lie or tell the truth
 Listeners judge speakers’ utterances in real time
 Interactive element of task adds ecological validity to findings

Experiment

Participants
- 24 same-sex, native British English speaking dyads
  - Two roles: Speaker ( liar ) and Guesser (lie detector)

Stimuli
- Visually-related object pairs
- Motivation manipulation: Gold coins (20 points) and silver coins (5 points)

Design
- 48 trials; 8 lists
- Objects counterbalanced for role (treasure/non-treasure image), position (treasure on left/right) and motivation to lie (gold/silver coins)

An example trial:

Task
- Speakers specified an object as the one concealing the treasure
- Guessers clicked on object with the aim to find the treasure
- Players awarded points for treasure retained ( Speakers ) or found ( Guessers )
- Winner received ¥ 1 cash reward

Analysis

Verbal cues

| ges: behind the painted lavender | spe: behind the ( .32 ) talley house |
| sil: the money is th: behind the one... | ful: behind the other broken fence |
| fa: think: behind the other... | sub: behind the other... |
| rep: behind the open... | inv: behind the open... |
| subst: behind the shorter... | o: behind the open... |
| silent pause: total silence across utterance | silent pause: time taken to initiate utterance |
| speech rate: syllables per second | linear and logit mixed models with maximal converging by-subject |

Nonverbal cues

- Head movements
- Hand movements
- Lip/mouth movements
- Smiles/laughter
- Shoulder movements
- Gaze

Results: Verbal cues

Guessers
- More likely to perceive utterances characterised by disfluency as lies
  - a) Silent pauses, \( p < .01 \)
  - b) Filled pauses, \( p = .07 \)
  - c) Silent pause duration, \( p < .05 \)
  - d) Onset latency, \( p = .08 \)

Speakers
- More likely to be disfluent when telling the truth
  - a) Filled pauses, \( p < .01 \)
  - b) False starts, \( p < .05 \)
- No effect of motivation on any verbal cues

Results: Nonverbal cues

Guessers
- More likely to perceive utterances characterised by smiling/laughter as truthful, \( p < .05 \)

Speakers
- More likely to produce body movements when lying, \( p < .01 \)
- Lower motivation associated with an increase in
  - a) Adaptors, \( p < .05 \)
  - b) Eyebrow movements, \( p = .05 \)

Conclusions

1. There appears to be a disconnect between Guessers’ perception and Speakers’ production of behavioural cues to deception
2. Guises’ behaviour suggests expectations based on the cognitive hypothesis; Ss’ behaviour supports the attempted control hypothesis
3. Verbal behaviours appear easier to control than nonverbal (cf. Ekman & Friesen’s ‘leaky channels’)
4. Motivation results do not support the Motivational Impairment Effect
   - May be due to different operationalisations of motivation across studies
   - More work would be needed to explore the motivation effect within speakers

References


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